

UNITED STATES PATENT OFFICE.

EMIL R. DRAVER, OF ALLIANCE, NEBRASKA, ASSIGNOR TO FLORENCE N. DRAVER, OF SAME PLACE.

SIFTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 551,308, dated December 10, 1895.

Application filed June 25, 1894. Serial No. 515,627. (No model.)

To all whom it may concern:

Be it known that I, EMIL R. DRAVER, a citizen of the United States, residing at Alliance, in the county of Boxbutte and State of Nebraska, have invented a new and useful Improvement in Sifting Apparatus, of which the following is a specification.

My invention relates to an improvement in apparatus which I have particularly designed for sifting use in connection with flour-mills, though it may be useful in other connections for its sifting function.

Referring to the accompanying drawings, Figure 1 is a cross-sectional view of a sifting apparatus involving my improvement in its preferred form, and Fig. 2 is a broken plan view of the screen device employed in the construction represented by Fig. 1.

A is a frame, shown as rectangular and as containing, between its sides, a hopper B emptying into a trough C, divided by a central longitudinal partition *r* into two compartments, each containing a rotary worm conveyer *C'*, which may be driven by suitable connections (not shown) with the driving mechanism of the screen device, hereinafter described.

D is the screen device, comprising a frame *q*, shown as of rectangular form and divided longitudinally along its center into two sections *p* and *p'* by a partition *o*, fastened to the under side of a flatwise-disposed center plate *n*, extending from one end of the frame to the other, though the partition *o* extends short of one end of the frame. Each of the sections *p* and *p'* has its bottom formed of screening fabric *m*, such as silk, fastened, according to the representation in Fig. 1, along its outer edge to the lower corresponding edge of the frame, and along its opposite edge at or near the junction of the partition *o* with the plate *n*. Thus the screen-cloth inclines upward along its inner edge, and forms with the plate *n* and partition a pocket *l* tapering toward the partition. As will thus be seen the plate *n* affords, as it were, a shield overhanging the screen over which it is caused to extend to form therewith a tapering pocket.

The frame *q* is flexibly suspended, as by rods *t*, from the top of the frame A, at or near

the center of the opposite ends of the frame *q*, and at or near the center of the plate *n* is a socket *k* into which enters the crank-pin *i'* of the head *i* on a rotary shaft *i''*, suitably journaled in vertical position and carrying at its upper end a beveled gear *i'''*. With the gear *i'''* there meshes a similar gear *h'''* on a horizontal rotary drive-shaft *h*, journaled in suitable bearings on the top of the frame A and carrying an eccentric *h'* having a link-connection *h''* with one edge of the screen-frame *q*, preferably at or near its longitudinal center.

The operation of the construction thus described is as follows: The material to be sifted is fed, say, to the section *p* at the end *x*, as through a hopper, (not shown,) and by the rotation of the shaft *h* the crank *i* imparts to the frame *q* an undulatory motion, which tends to spread the material upon the screen *m* of that section and crowd it into the tapering pocket *l* thereof, from which it is forced out by the motion of the screen-frame. In each revolution of the shaft *h*, by the eccentric connection and the incidental jarring action of the latter, the working of the material on the screen may be enhanced, though this eccentric connection is dispensable. Thus the material is propelled along the screen of section *p* and passes about the end of the partition *o* into the section *p'*, when the tilting and jarring action of the eccentric connection, if provided, is the reverse of that imparted to the material in the section *p*, the sifting motion tending to expel the material from the adjacent pocket *l* and strew it over the screen-surface, at the end of which the tailings discharge, the sifted product dropping, throughout the operation, into the trough C, from which the conveyers *C'* lead it off.

The sifting effect of the apparatus thus described is very thorough and rapid.

Obviously any number of the screen devices D may be provided, one below the other and connected together, all to be actuated by the one crank on the uppermost, and of course such series of screens should be separated by horizontal partitions and may be arranged to discharge one into the other at their ends; but such an arrangement is not new with

other screens, and is too obvious to require illustration in connection with my improved screen construction.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a sifting-apparatus the combination with the frame of a screen sloping from one side of the frame and a shield overhanging one edge of the screen and forming therewith a tapering pocket, substantially as and for the purpose set forth.

2. In a sifting-apparatus, the combination of a frame, a partition dividing the frame longitudinally into compartments and extending short of one end of the frame, screens in the compartments, sloping toward the partition from its opposite sides, said partition having

lateral extensions overhanging the screens and forming therewith tapering pockets, substantially as and for the purpose set forth.

3. In a sifting-apparatus, the combination of a frame, a partition *o* surmounted by a plate *n* and dividing the frame longitudinally into compartments and extending short of one end of the frame, and screens in the compartments sloping upward toward the partition from its opposite sides and forming with said plate and partition tapering pockets, substantially as and for the purpose set forth.

EMIL R. DRAVER.

In presence of—

CHARLES F. CARLETON,
H. C. DRAVER.